Sound Watershed Consulting

Creating Functional Water Environments

The VTAC Committee:

Site-Specific Riparian Management Guidance Documents

Michael Liquori, VTAC Chair

and others…

March 6, 2013

VTAC Participants

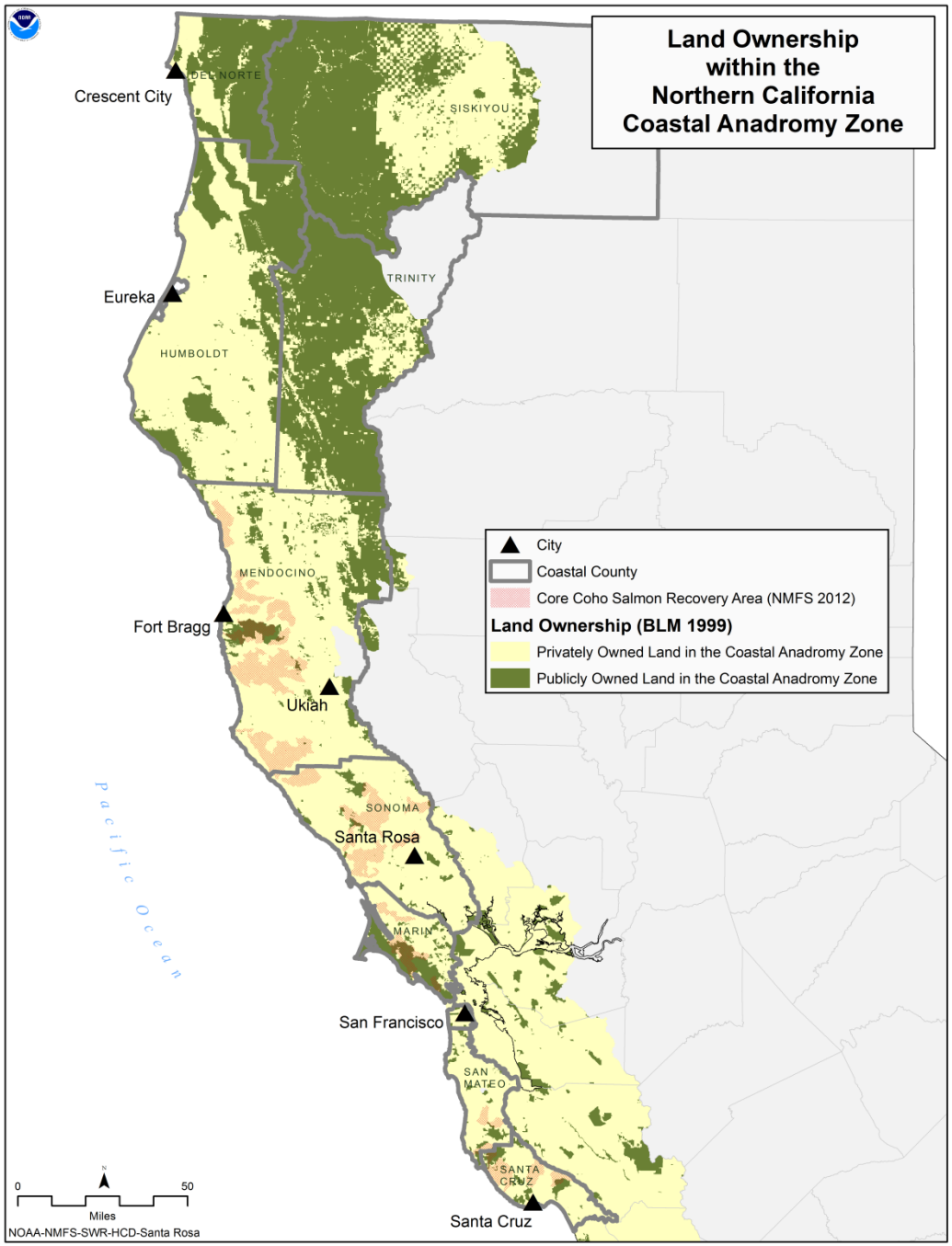
- **Members**
  - Mike Liquori, SWC (Chair)
  - Peter Ribar, CTM
  - Dr. Kevin Boston, OSU
  - Dr. Matt O'Connor, OEI
  - Dr. Kate Sullivan, HRC *(through 2011, now USEPA)*
  - Mark Lancaster, 5C
  - Richard Gienger, public
  - Dave Hope, Consultant

- **Agency Representatives**
  - Bill Short, CGS
  - Bill Stevens, NMFS
  - Bryan McFadin, NCRWQCB
  - Drew Coe, CVRWQCB
  - Stacy Stanish, Kevin Shaffer, Dr. Stephen Swales, DFW
  - Pete Cafferata, CAL FIRE

- **CAL FIRE/BOF Assistance**
  - Crawford Tuttle (through 2011)
  - Bill Snyder
  - Duane Shintaku
  - Dennis Hall
  - George Gentry

Presentation Outline

1. Background Information
2. Board Framework
3. VTAC Guidance Document Overview
4. Next Steps: Pilot Projects
5. Key Outstanding Challenges (unscoped)



Private and Public Land Ownership within the Coastal Anadromy Zone

85-90% of remaining CCC coho salmon exist on private forestlands

Technical Basis for ASP Rules

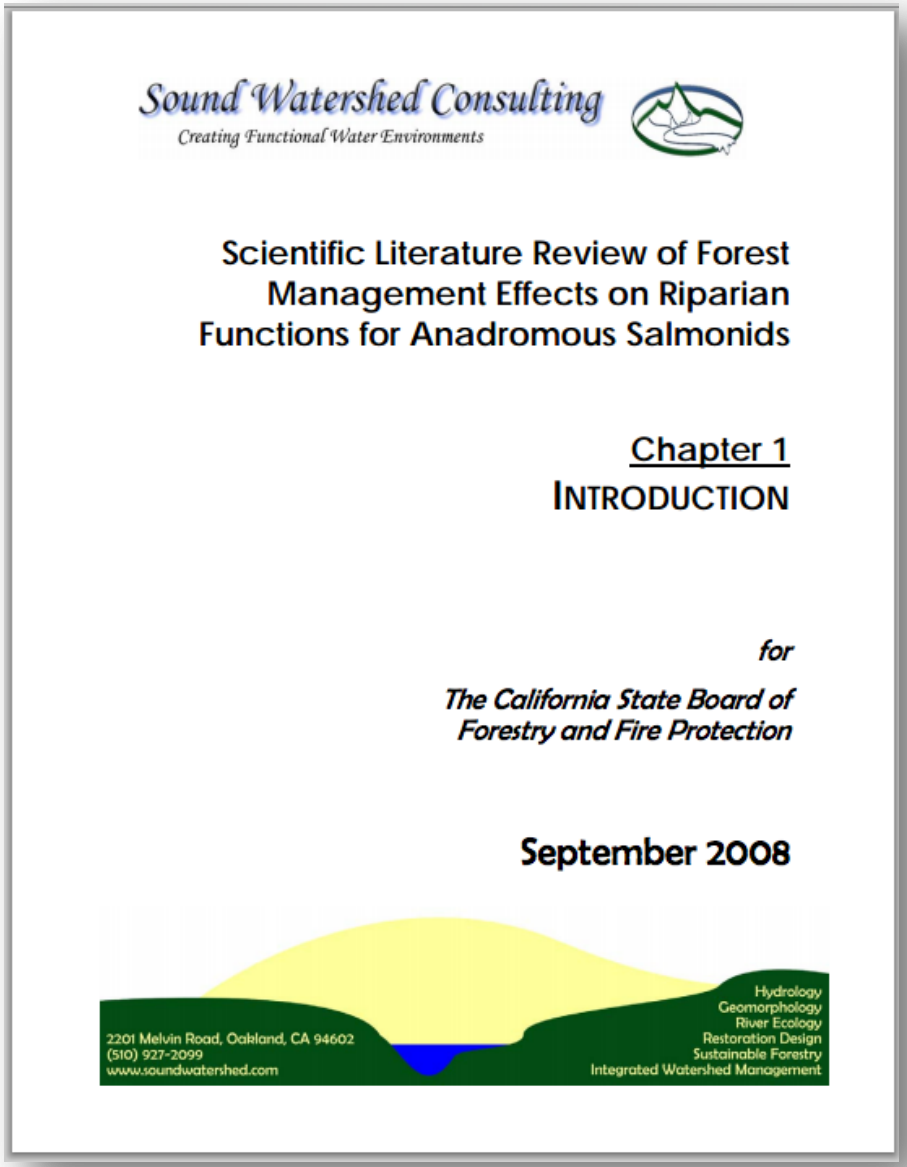
Mike Liquori

Doug Martin

Robert Coats

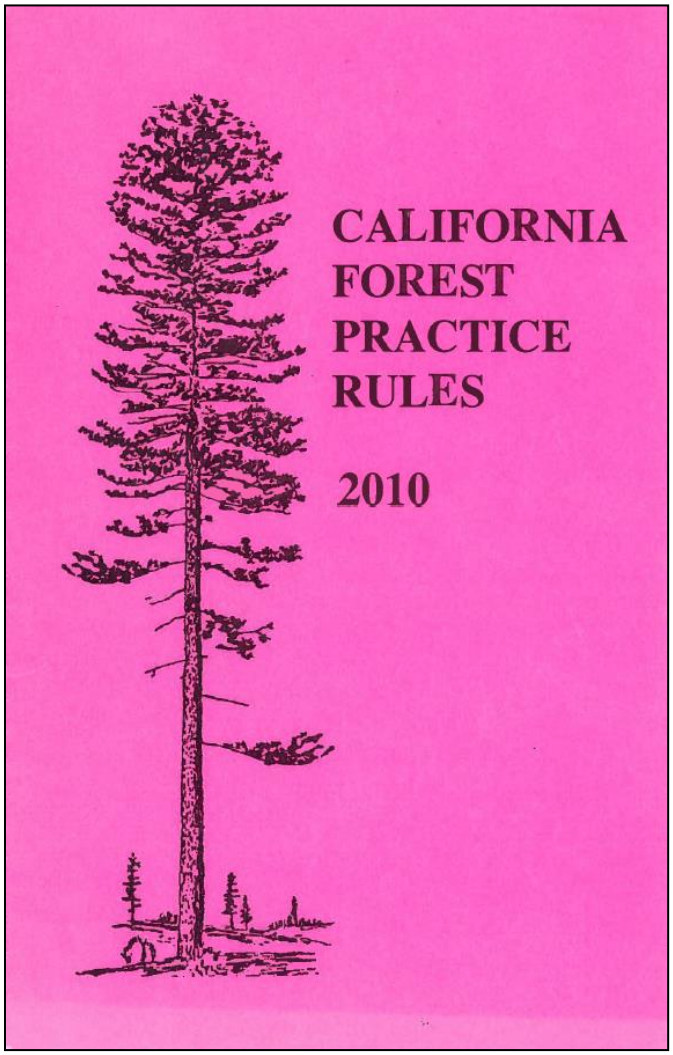
Lee Benda

David Ganz



1. ASP Rule 14 CCR § 916.9(v)

Section (v) of the 2009 ASP rules established a regulatory pathway for voluntary site-specific riparian design



Section V Rules achieve riparian goals through **spatially-explicit, context-specific objectives**

Established by actual site conditions, not rule assumptions

Sound Watershed Consulting

Creating Functional Water Environments

Board Framework for Guidance Documents

ASP Rule 14 CCR § 916.9(v)

- based on scientific principles
- watershed or stream reach scale
- promote more immediate short-term functional responses

VTAC Objectives

① Principles, guidelines & procedures

② Permitting efficiencies

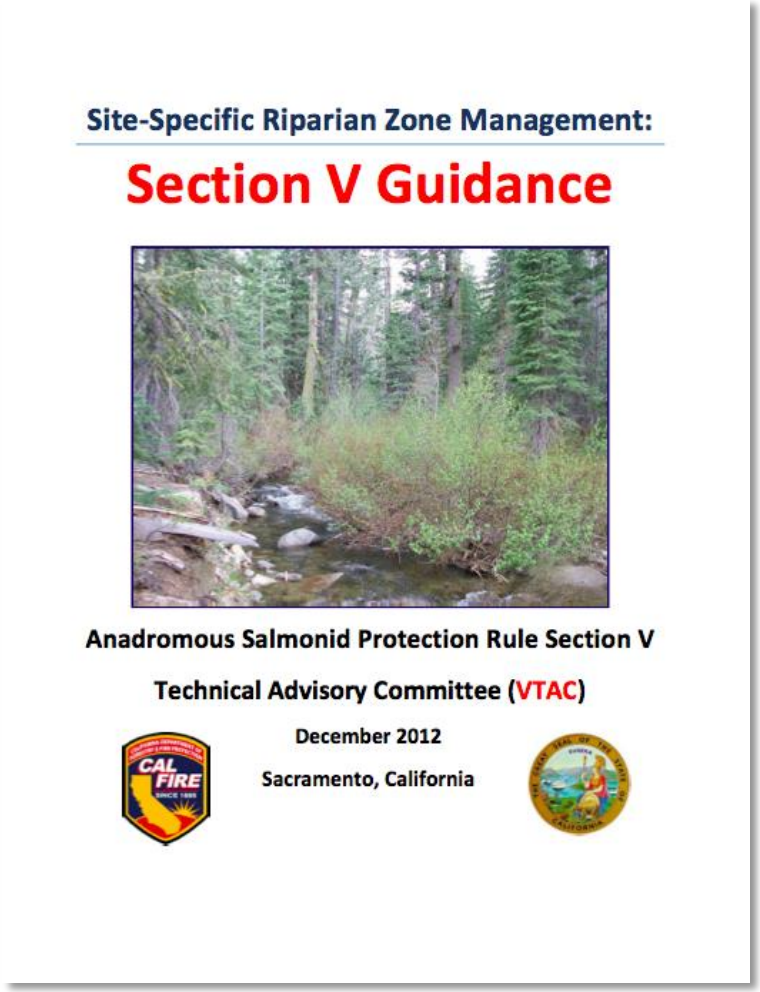
③ Reduce regulatory uncertainty

④ Broaden Incentives

Timeline

- **Oct 2010 thru Dec 2012**
  - ✓ 15 meetings
  - ✓ Stakeholder Survey
  - ✓ 2 Field Tours
  - ✓ Pre-Consultation Guidelines
  - ✓ Guidance Document

- **2013 Pilot Phase**
  - ✓ 1-2 representatives / project
  - ✓ Informal email and conference call updates



Sound Watershed Consulting

Creating Functional Water Environments

Guidance Document Structure & Organization

Table of Contents

Appendices

Management Objectives

Management	Objective	Suitability Criteria
Protect	Minimize disturbance to allow natural recovery.	Sites on the trajectory toward recovery.
Maintain	Maintain riparian-dependent exchange functions.	Sites where function status is rated good.
Improve	Improve performance or response timing for one or more key riparian-dependent functions.	Sites where there is potential to promote/enhance aquatic ecological services.
Restore	Restore riparian-dependent functions to levels necessary for sustaining aquatic ecological services.	Sites where function status is rated fair to poor, and where delivery potential is rated medium to high.
Generally Available	Provide flexibility in addressing other higher-priority issues.	Existing conditions and trends that indicate low sensitivity to a particular variable.

Incentives

CAL FIRE

California Forest Improvement Program (CFIP)

Forest Legacy Program (FLP)

California Forest Stewardship Program

SWRCB 319(h), other grants

Calif. State Parks

Habitat Conservation Fund grants

Land and Water Conservation Fund grants

USDA

Conservation Reserve Program

NRCS

Environmental Quality Incentives Program

Wildlife Habitat Incentive Program (WHIP)

Conservation Technical Assistance (CTA)

Wetlands Reserve Program (WRP)

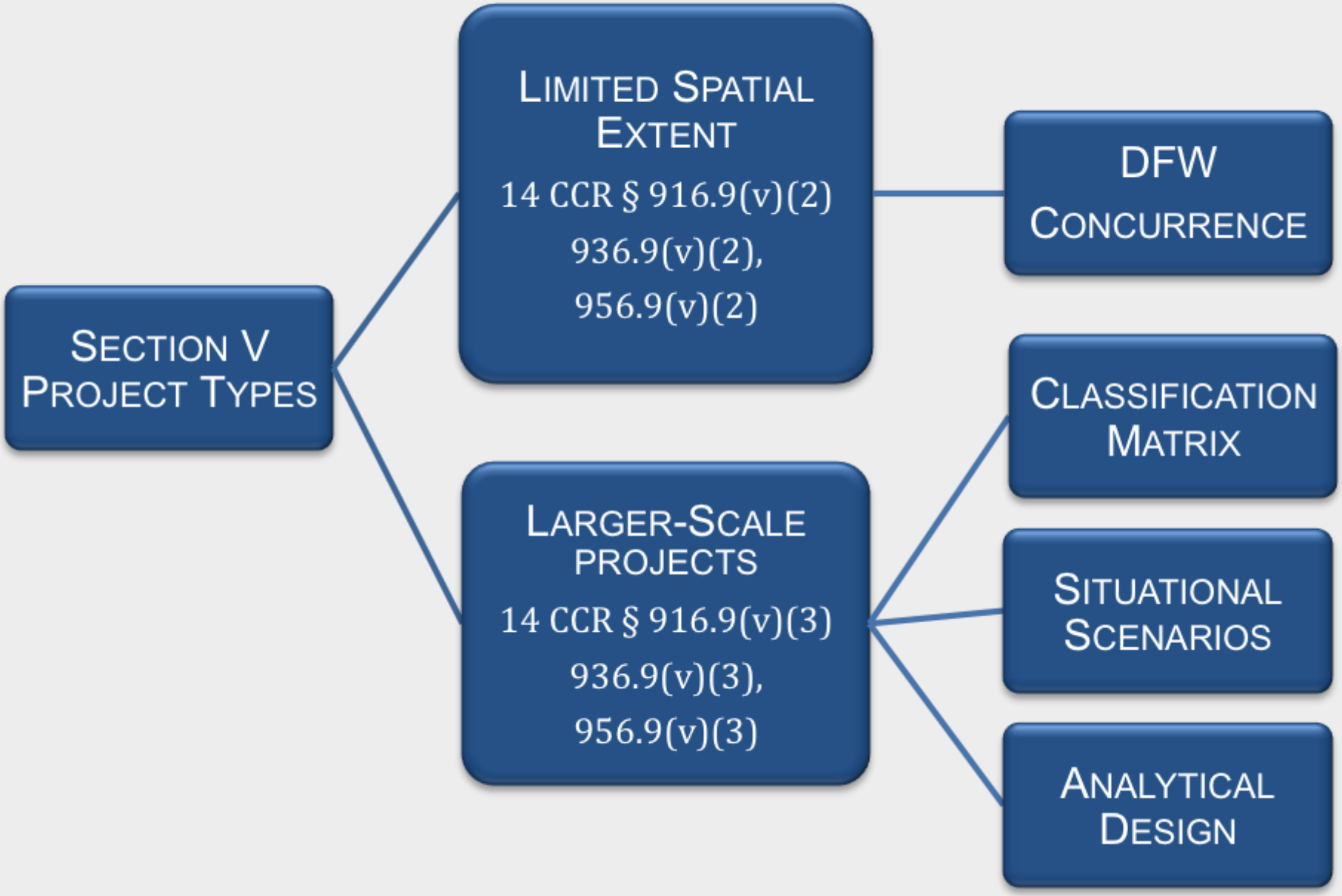
US EPA

Region 9 grants and funding

Wildlife Conservation Board

VTAC Pre-Consultation Guidelines

- Quickly determine the potential success of a proposed Section (v) project
- Structured Form (field handout)
- Voluntary
- Does not receive formal agency approval


Section V Project Types
Limited Spatial Extent
14 CCR § 916.9(v)(2)
936.9(v)(2),
956.9(v)(2)
DFW Concurrence
Larger-Scale projects
14 CCR § 916.9(v)(3)
936.9(v)(3),
956.9(v)(3)
Classification Matrix
Situational Scenarios
Analytical Design

Sound Watershed Consulting

Creating Functional Water Environments

Pathway 1) Classification Matrix Approach

Suitability for P1

- A relatively simple assessment procedure
  - Generally applicable goals
  - Common ecological processes & functions
  - Sets priorities among functions
- The project scale is relatively small
- Detailed technical expertise is cost-prohibitive

Rule Matrix

Riparian Classification

Geomorphic Classification

		Site Condition		
		Good	**Fair**	**Poor**
Functional Priority	**High**	Protect	Maintain	Improve
	Mod.	Maintain	Improve	Improve
	Low	Generally Available	Generally Available	Maintain

Rule Matrix

Segment Objectives

Segment Objectives				
	Wood	**Temperature**	**Nutrients**	**Erosion**
Protect	Maximize retention of recruitable wood	Maximize retention of vegetation that blocks incoming solar radiation	Maximize retention of existing high nutrient vegetation	Prevent and avoid ground disturbances that may disturb banks and/or concentrate runoff
Maintain	Minimize removal of recruitable wood	Minimize reduction in shade	Minimize reduction in nutrient supply	Minimize ground disturbances that may disturb banks and/or concentrate runoff
Improve	Carefully identify individual tree selection that encourage desired silvicultural responses	Carefully identify individual tree selection that minimizes reduction in shade	Encourage treatments that promote balanced primary production and establishment of high nutrient species	Consider treatments that support recovery of eroding lands (e.g. planting, biotechnical stabilization, etc)
Generally Available	Treatment constraints for this function are minimized	Treatment constraints for this function are minimized	Treatment constraints for this function are minimized	Treatment constraints for this function are minimized

Geomorphic Classification

			Functional Priority Rating			
Class	**Size**	**Type***	**Wood**	**Temperature**	**Nutrients**	**Erosion**
I	Large	Regime	Moderate	Low	Low	High
		Braided	Moderate	Low	Low	High
		Pool Riffle	High	Low	Low	High
	Medium	Regime	Moderate	Moderate	High	High
		Braided	Moderate	Moderate	High	High
		Pool Riffle	Moderate	Moderate	High	High
		Forced Pool Riffle	High	Moderate	High	High
		Plane Bed	High	High	High	Moderate
		Step-Pool	Moderate	High	Moderate	Low
		Cascade	Low	High	Moderate	Low
	Small	Pool Riffle	High	High	High	High
		Forced Pool Riffle	High	High	High	High
		Plane Bed	High	High	High	Moderate
		Step-Pool	Moderate	High	Moderate	Low
		Cascade	Low	High	Moderate	Low
II	All	Pool Riffle	Moderate	Moderate	Moderate	High
		Forced Pool Riffle	High	Moderate	Moderate	High
		Plane Bed	Low	Moderate	Low	Moderate
		Step-Pool	Low	Moderate	Low	Low
		Cascade	Low	Moderate	Low	Low
III	All	Colluvial	Varied	Moderate	Low	Varied
Hotspots	All	Debris Flow Sources	High	Moderate	Low	High
		Debris/alluvial Fans	High	Moderate	Low	High
		Tributary Junctions	Moderate	Moderate	High	Moderate
		Class II Transition	Low	High	High	Moderate
		Sensitivity Zone	**75% SPTH**	**33 feet**	**66 feet**	**Variable** *(min 33 feet)*

Inherent Riparian Function

Composition of Vegetation

C = Conifer [≥70% conifer]
H = Hardwood [≥ 70% hardwood]
M = Mixed [all other cases]

Relative Tree Size

S = Smaller than functional
L = Larger than functional
M = Mixed

Relative Stand Density

D = Differentiating (active mortality)
F = Fully Stocked (mortality eminent)
U = Under stocked (open, active growth)

Riparian Class			Inherent Functional Levels		
			Wood Supply	Nutrient Supply	Thermal Loading
C	S	D	Moderate	Poor	Good
C	S	F	Poor	Poor	Good
C	S	U	Poor	Moderate	Moderate
C	L	D	Good	Moderate	Good
C	L	F	Good	Moderate	Good
C	L	U	Moderate	Moderate	Moderate
C	M	D	Good	Moderate	Good
C	M	F	Good	Moderate	Good
C	M	U	Moderate	Moderate	Moderate
H	S	D	Moderate	Good	Good
H	S	F	Poor	Good	Good
H	S	U	Poor	Good	Moderate
H	L	D	Moderate	Good	Good
H	L	F	Poor	Good	Good
H	L	U	Poor	Good	Moderate
H	M	D	Moderate	Good	Good
H	M	F	Poor	Good	Good
H	M	U	Poor	Good	Moderate
M	S	D	Moderate	Moderate	Good
M	S	F	Moderate	Moderate	Good
M	S	U	Poor	Good	Moderate
M	L	D	Good	Moderate	Good
M	L	F	Good	Good	Good
M	L	U	Moderate	Good	Moderate
M	M	D	Good	Good	Good
M	M	F	Good	Good	Good
M	M	U	Moderate	Good	Moderate

Rule Matrix

Channel Classification	Functional Priority	Riparian Classification: Site Condition — Good	Fair	Poor
	High	Protect	Maintain	Improve
	Mod.	Maintain	Improve	Improve
	Low	Generally Available	Generally Available	Maintain

Wood	Temperature	Nutrients	Erosion

Priorities

Segment Objectives				
	Wood	**Temperature**	**Nutrients**	**Erosion**
Protect	Maximize retention of recruitable wood	Maximize retention of vegetation that blocks incoming solar radiation	Maximize retention of existing high nutrient vegetation	Prevent and avoid ground disturbances that may disturb banks and/or concentrate runoff
Maintain	Minimize removal of recruitable wood	Minimize reduction in shade	Minimize reduction in nutrient supply	Minimize ground disturbances that may disturb banks and/or concentrate runoff
Improve	Carefully identify individual tree selection that encourage desired silvicultural responses	Carefully identify individual tree selection that minimizes reduction in shade	Encourage treatments that promote balanced primary production and establishment of high nutrient species	Consider treatments that support recovery of eroding lands (e.g. planting, biotechnical stabilization, etc)
Generally Available	Treatment constraints for this function are minimized	Treatment constraints for this function are minimized	Treatment constraints for this function are minimized	Treatment constraints for this function are minimized

Priorities

Segment Objectives				
	Wood	**Temperature**	**Nutrients**	**Erosion**
Protect	Maximize retention of recruitable wood	Maximize retention of vegetation that blocks incoming solar radiation	Maximize retention of existing high nutrient vegetation	Prevent and avoid ground disturbances that may disturb banks and/or concentrate runoff
Maintain	Minimize removal of recruitable wood	Minimize reduction in shade	Minimize reduction in nutrient supply	Minimize ground disturbances that may disturb banks and/or concentrate runoff
Improve	Carefully identify individual tree selection that encourage desired silvicultural responses	Carefully identify individual tree selection that minimizes reduction in shade	Encourage treatments that promote balanced primary production and establishment of high nutrient species	Consider treatments that support recovery of eroding lands (e.g. planting, biotechnical stabilization, etc)
Generally Available	Treatment constraints for this function are minimized	Treatment constraints for this function are minimized	Treatment constraints for this function are minimized	Treatment constraints for this function are minimized

P1 Submission Requirements

1. Description of the current riparian condition
2. Description of the evaluation area (watershed scale)
3. Identification of beneficial functions
4. Evaluation of design effects to the beneficial functions
5. Description of the site-specific proposal
6. Implementation schedule
7. Simple monitoring plan

Sound Watershed Consulting

Creating Functional Water Environments

Pathway 2)
Situational Scenarios

Suitability for P2

- Common situations
- Use of 3rd-party recovery documents to provide the context and project goals
  - NMFS 2012 – Recovery Plan Documents
  - Habitat Conservation Plans
  - Watershed Analyses
  - etc

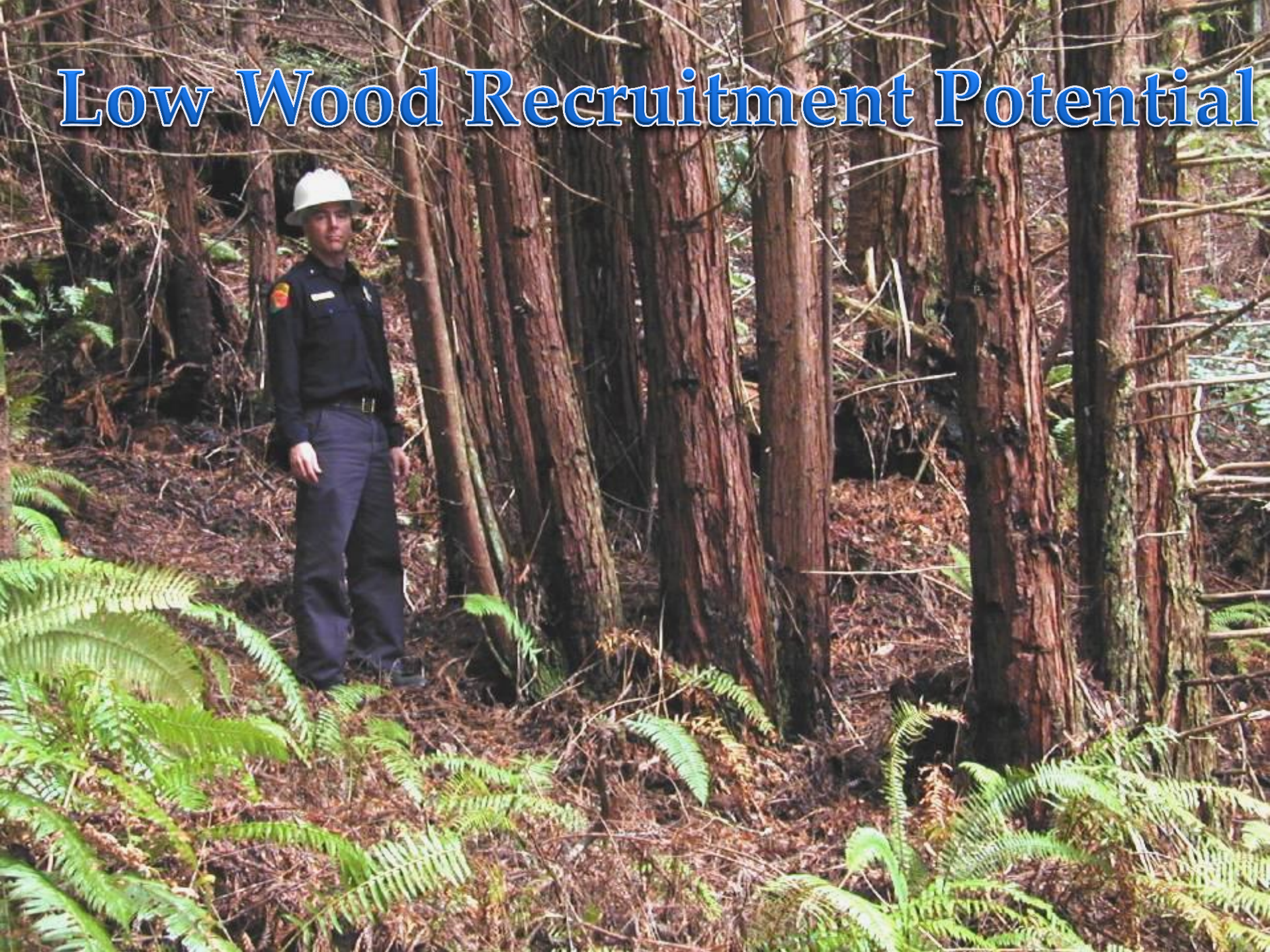
Document Elements

For each Situation Scenario:

- Overview
- Typical Suitability Criteria
- Design Factors to Consider
- Treatment Options
- Hazards (red-flags)
- Hypothetical Example(s)
- Submission Requirements


1) Low LWD Loading + Low Riparian Mortality

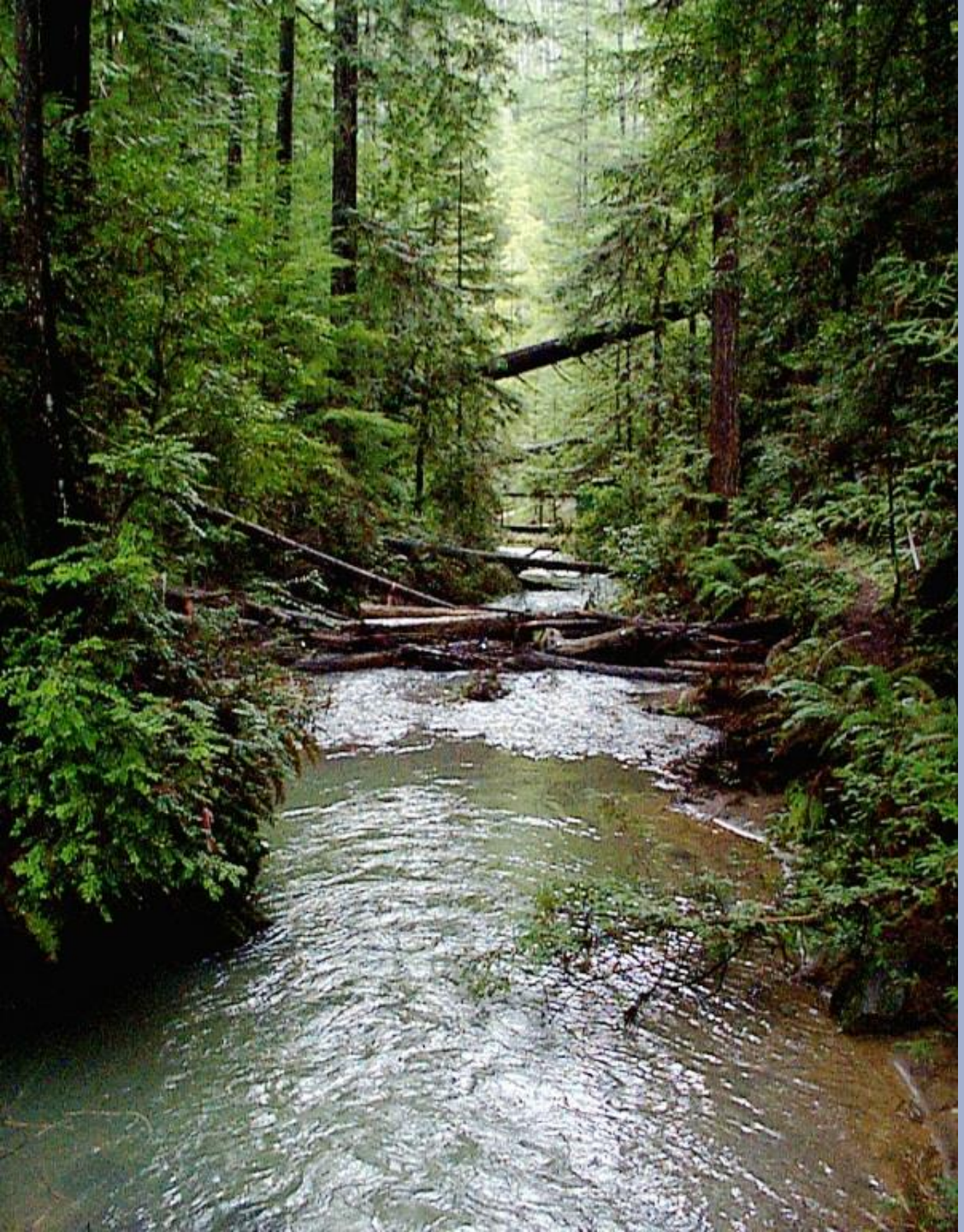
2. Headcutting and/or Incised Channels


Low Wood Recruitment Potential

High Catastrophic Wildfire Risk

Ponderosa Fire Battle Creek
er Creek Riparian Zone

Mark Lathrop, SPI



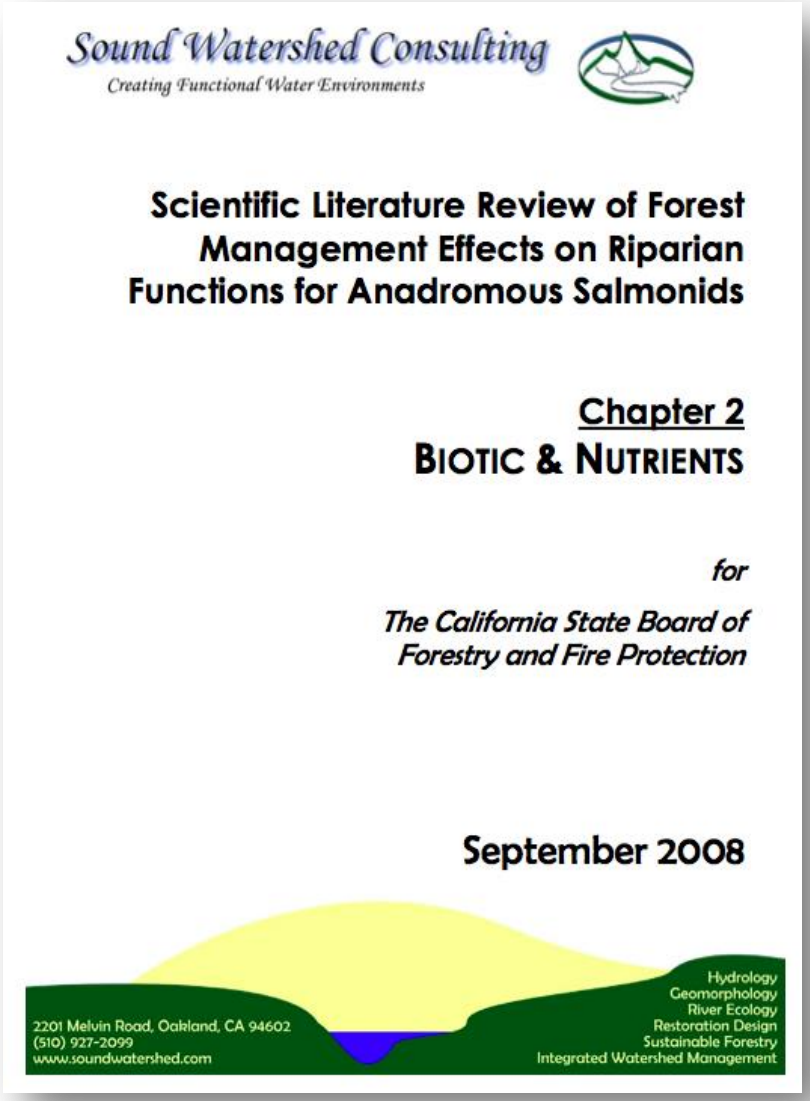
Relatively Closed Canopy Riparian Corridors lacking Nitrogen-Fixing Species or with Low Primary Productivity

Parlin Creek, Jackson Demonstration State Forest
Mendocino County

Biotic Diversity & Nutrients

- a sufficient number of nitrogen-fixing deciduous trees *distributed at key locations within the stream network*;
- a sufficient number of riparian canopy gaps that support primary and aquatic macroinvertebrate production while balancing effects on other riparian functions.

(Wilzbach et al. 2005; Kiffney and Roni 2007; Modenke and Ver Linden 2007; Poor and McDonnell, 2007; others)



6. Sediment Reduction within Riparian Zones

Submission Requirements

1. Evaluate existing site conditions.
2. Assess watershed conditions.
   - Use existing information sources, CI assessment
3. Determine desired ecological functions.
4. Identify the applicable situational scenario.
5. Determine if additional expertise is needed.
6. Additional considerations.
   - Issues to address Section (v) analysis requirements:
     - Identification of the potential effects to beneficial functions.
     - Detailed description

Sound Watershed Consulting

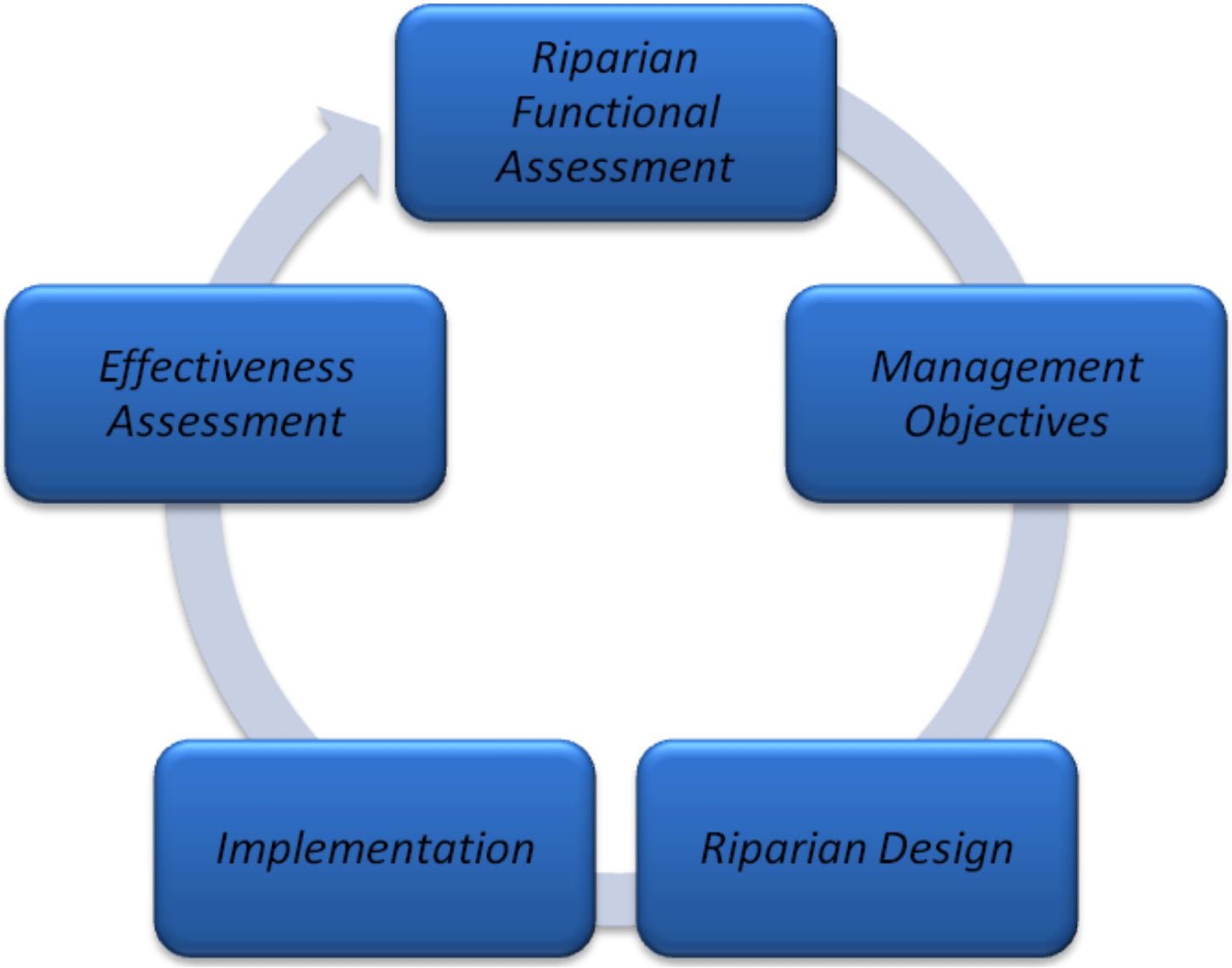
Creating Functional Water Environments

Pathway 3) Analytical Design

Suitability for P3

- Conflicting Goals or Complex Issues
- Existing planning reports
  - Direct or adjacent
- Technical Experts and/or Robust Datasets
- Large-scale analysis
- Pathways I or II are not appropriate

Analytical Design



Sound Watershed Consulting

Creating Functional Water Environments

Other Key Elements

Document Appendices

- Section V Rule Language
- Pre-Consultation Guidelines
- Map of the ASP Rule Geographic Scope
- Watershed Context Information
- Channel Type Definitions and Diagrams
- Example Using the Classification Matrix Pathway

VTAC Training

- **RPF/Landowner and Agency training sessions.**
  - Summer and Fall 2013.
  - RPF/landowner sessions to be field oriented.

- **VTAC website for RPF/landowner education.**

http://www.bof.fire.ca.gov/board_committees/vtac/

Sound Watershed Consulting

Creating Functional Water Environments

Next Steps
Pilot Projects

VTAC Potential Pilot Projects

A. Green Diamond Resource Company
   - Canopy gaps & other studies

B. Campbell Timberland Management
   - Wood loading

C. Collins Pine Company
   - Fire Risk

D. LaTour Demonstration State Forest
   - Fire Risk

E. Jackson Demonstration State Forest??

Recent THPs with Site-Specific Mgmt

Coast Ranges Region

- **Slaughterhouse THP** (1-10-020 MEN), submitted by Campbell Timberland Management.
  - 17 large wood enhancement sites (35 trees felled).

- **Kestrel THP** (1-11-087 SON), submitted by Gualala Redwoods, Inc.
  - 4 large redwood trees to be excavated or felled into dry part of SF Gualala River.
  - Done under DFW 1600 Agreement; requested by Review Team agencies.

- **Piccolotti THP** (1-10-030 MEN), submitted by The Conservation Fund
  - Per CDFW requirement, the 50 foot wide no-cut zone adjacent to Big River will be subjected to a limited understory thinning conducted to increase individual conifer growth rates.

Recent THPs with Site-Specific Mgmt

Northern Interior Region (V2 Pre-Consultation with DFW)

- **Maidenhair THP**, 2-10-031 TEH, submitted by SPI.
  - Standard (non-ASP) width WLPZs for Class I and II watercourses, with no operations in the buffers.
- **North McMullen THP**, 2-10-049 SHA, submitted by LaTour Demonstration State Forest.
  - 75 foot no-cut Class I WLPZ.
- **Tower THP**, 2-10-056-SHA, submitted by W.M. Beaty and Associates.
  - 50 to 100 foot Class I WLPZs based on slope, with 50% overstory canopy retention.
- **Howard Springs THP**, 2-10-082 TEH, submitted by SPI.
  - 100 foot Class I WLPZs in 2 units, with a 50 foot no-cut for the first 50 feet and 50% overstory canopy retention for the second 50 feet.

Sound Watershed Consulting

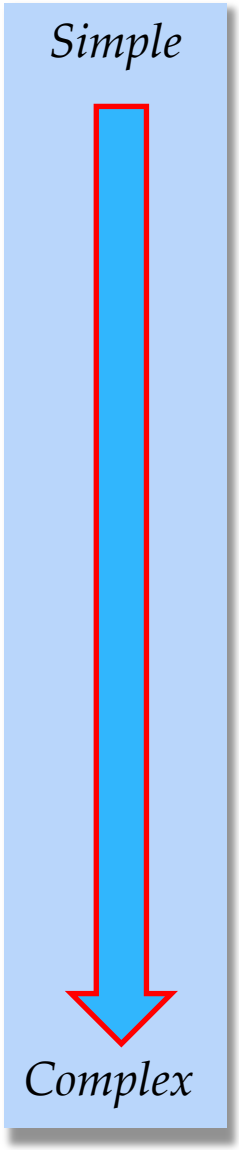
Creating Functional Water Environments

Outstanding Challenges

- New Practices
- Sensitive Resource

Integrated Monitoring Strategy

Monitoring



- ***Compliance*** – Did they do it as designed?
- ***Implementation*** – Did the action lead to the desired effect (or not)?
- ***Effectiveness*** – Does the effect support the ecology?
- ***Validation*** – are our assumptions correct?

effective, systematic monitoring is beyond any single landowner

We need a coordinated approach.

(provides incentive too…)

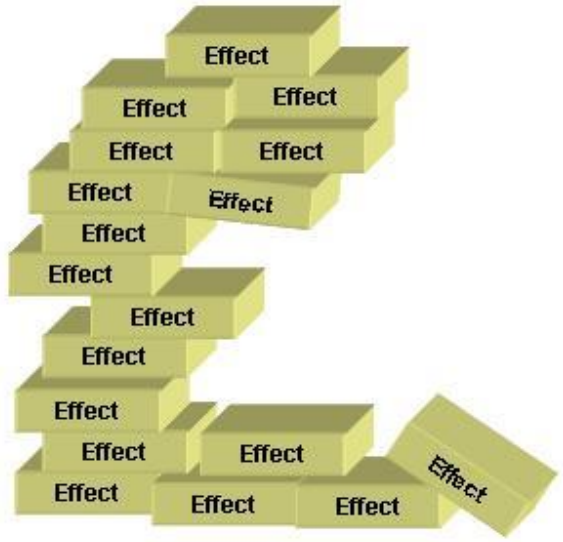
Cumulative Effects

Section (v)(10):

“pilot projects and guidance shall address cumulative and planning watershed impacts”

Our Approach:

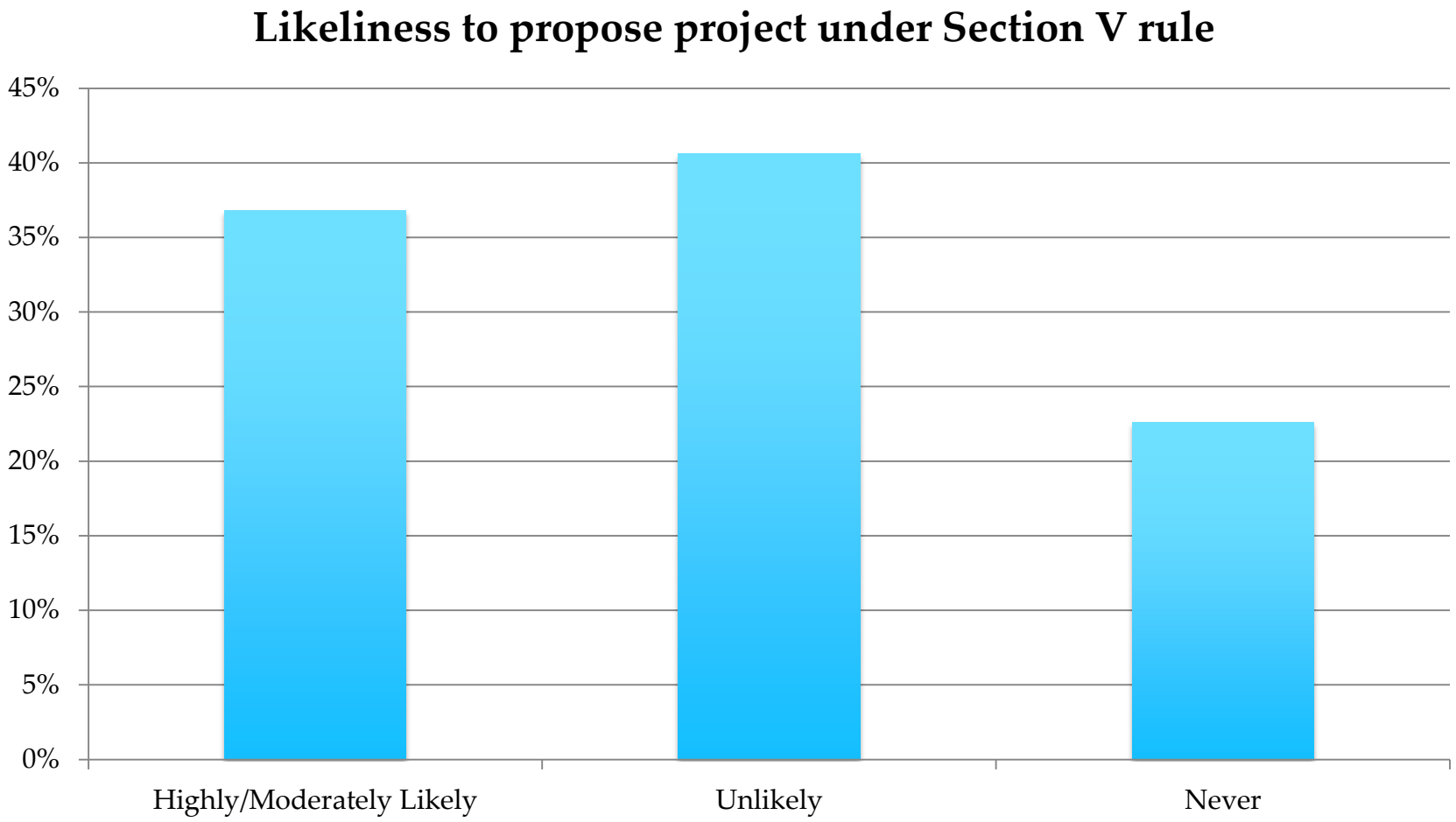
- **Existing Literature**
- **THP Section**
- **Other Processes**

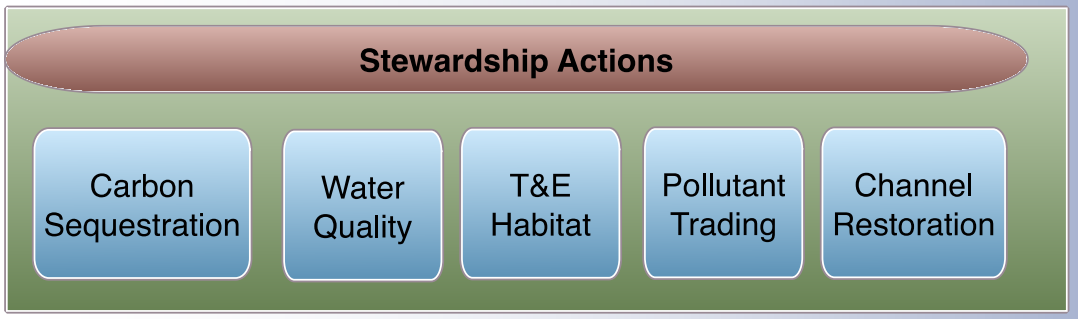


Additional Opportunities

- Offsite Mitigation
  - Collaborative enhancement efforts
  - Promotes priority enhancement sites
- Simplified Permitting
  - Make it easier to do good things
- Set a Track Record
  - Increase willingness to engage by landowners

VTAC Survey Summary





Ecosystem Service Markets

Existing Markets

Carbon Market
Conservation Easements
Timber & Pulp

New Markets

TMDL Watersheds
Mitigation Banks

How can we leverage these markets to improve incentives that promote riparian stewardship?

Thank You!

mike@soundwatershed.com